PLUG STRUCTURE

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a plug structure, and particularly relates to a plug structure adopted for electrically connecting a plurality of conduction cords to be more secured and fastened.

2. Background of the Invention

Referring to Fig. 1, a conventional plug is adopted for electrically connecting a plurality of conduction cords, and is particularly adopted for connecting between a computer or telephone cables. The conventional plug includes a base 10a, and a device 11a disposed on an exterior side thereof for engagement and orientation. The base 10a includes a plurality of contacts 12a, each contacts 12a can shift longitudinally with a short distance, each contacts 12a has a connection member 13a arranged on a top therein, the connection member 13a has a plurality of slots 14a respectively relating to the contacts 12a, and the contacts 12a accordingly insert into the connection member 13a via the slots 14a. The connection member 13a has a plurality of guiding slots (not shown) formed therein.

When the conduction cords 20a connect to the plug, the conduction cords 20a are inserted into the base 10a from a rear thereof, the cords 20a penetrate through the connection member 13a via the guiding slots and the slots 14a, and the contacts 12a stab the cords respectively to connect electrically inner conductive materials in the cores 20.

However, the conventional plug connects the cords 20a without precise orientation and security, and the cords 20a slip off the connection member 13a easily to disconnect electrically the contacts 12a.

Hence, an improvement over the prior art is required to overcome the disadvantages thereof.

SUMMARY OF INVENTION

The primary object of the invention is therefore to specify a plug structure with an orientation member to press and orientate cords; the cords thus connect the plug structure securely without the cords slipping off the plug structure to disconnect electrically.

According to the invention, these objects are achieved by a plug structure including a base defining a receiving cavity formed therein and a plurality of slots formed in a front thereof to communicate with the receiving cavity, a plurality of contacts arranged in the slots, a connection member defining a plurality of slits formed in a front thereof and a plurality of conduction cords receiving into the slits. The base includes a member disposed on an exterior side thereof, the connection member includes an orientation member disposed thereon and the conduction cords are retained against the orientation member to for orientation. The connection member is disposed in the receiving cavity, and the contacts are pressed in the slots to pierce into the conduction cords for electrical connection.

To provide a further understanding of the invention, the following detailed description illustrates embodiments and examples of the invention. Examples of the more important features of the invention thus have been summarized

rather broadly in order that the detailed description thereof that follows may be better understood, and in order that the contributions to the art may be appreciated. There are, of course, additional features of the invention that will be described hereinafter and which will form the subject of the claims appended hereto.

BRIEF DESCRIPTION OF THE DRAWINGS

These and other features, aspects, and advantages of the present invention will become better understood with regard to the following description, appended claims, and accompanying drawings where:

Fig. 1 is a cross-sectional profile of a conventional plug structure;

Fig. 2 is a perspective view according to a first embodiment of the present invention;

Fig. 3 is a decomposition view of the first embodiment while a plurality of conduction cords connecting the connection member;

Fig. 3A is an enlarged view according to Fig. 3;

Fig. 4 is a decomposition view of the first embodiment when the conduction cords are disconnected from the connection member;

Fig. 5 is a first longitudinal profile according to the first embodiment;

Fig. 6 is a second longitudinal profile according to the first embodiment;

Fig. 7 is a third longitudinal profile according to the first embodiment;

Fig. 8 is a lateral profile of the connection member and the conduction cords according to the first embodiment;

Fig. 9 is a perspective view according to a second embodiment of the present invention;

Fig. 10 is a perspective view according to a third embodiment of the present invention;

Fig. 11 is a decomposition view according to the third embodiment of the present invention;

Fig. 12 is a decomposition view according to a fourth embodiment of the present invention;

Fig. 13 is a decomposition view according to a fifth embodiment of the present invention; and

Fig. 14 is a decomposition view according to a sixth embodiment of the present invention.

DETAILED DESCRIPTION OF THE EMBODIMENTS

With respect to Figs. 2 to 5, the present invention provides a plug structure including a base 10, a plurality of contacts 20, a connection member 30 and a plurality of conduction cords 40. The base 10 is made of insulating materials, such as plastic, and the base 10 includes a member 11 disposed on an exterior side thereof. The base 10 defines a receiving cavity 12 formed therein, an opening formed in a rear thereof to communicate with the receiving cavity 12, and a plurality of slots 13 formed in a front thereof to communicate with the receiving cavity 12. The slots 13 are formed with predetermined equal distances spaced therebetween. The base 10 has a buckling portion 14 disposed on a side in the receiving cavity 12 of the base 10.

The contacts 20 is made of conductive materials, such as copper. The contacts 20 are respectively arranged in the slots 13. The contacts 20

respectively have needle portions 21 arranged at ends thereof, so as to pierce and electrically connect the conduction cords 40, respectively

The connection member 30 is made of insulating materials, such as plastics. The connection member 30 includes a hollow shell 31 disposed at a rear thereof; the hollow shell 31 has two outlets relatively formed in a rear and a front thereof for the conduction cords 40 to penetrate therein. The connection member 30 defines a plurality of slits 32 formed in a front thereof, and a recessed cavity 33 is formed thereon adjacent to the hollow shell 31 and the slits 32. The slits 32 are formed on the connection member 30 with predetermined equal distances spaced therebetween. The connection member 30 includes a sidewall defining an aperture 35 adjacent to and communicating with the slits, and the conduction cords 40 are arranged in the slits 32 via the aperture (see Fig. 3A). The sidewall has two guiding inclined surfaces 34 formed on two opposing sides adjacent to the aperture 35, and the aperture 35 is split and narrower than each slit 32. Illustrated in Fig. 12, the slits 32 and the aperture 35 can be designed with different types.

The connection member 30 includes an orientation member 36 disposed above the recessed cavity 33, the orientation member 36 is adjacent to the hollow shell 31 and the slits 32, and the conduction cords 40 penetrate the hollow shell 31 into the slits 32. The orientation member 36 includes a resilient juncture portion 364 made integrally in one piece from the connection member 30 and is adjacent to a side of the recessed cavity 33. The orientation member 36 is thus capable of being lifted or covered via the resilient juncture portion 364. The orientation member 36 is flat and plate-like, and includes an

orientation pillar 361 protruding therefrom and opposite the resilient juncture portion 364. The connection member 30 has a secured hole 362 formed thereon corresponding to the orientation pillar 361 and communicating with the recessed cavity 33. The orientation pillar 361 inserts into the secured hole 362 while the orientation member 36 covers the same. The orientation pillar 361 and the secured hole 362 combine into a lock unit and the orientation member 36 is secured by a lock unit, while the orientation member 36 covers the same. The orientation member 36 has a plurality of partitions 363 arranged on an interior surface thereof with predetermined equal distances spaced therebetween to separate the conduction cords 40, respectively. Each partition 363 is elongated in a strip or cylindrical shape. Each conduction cord 40 is of a flat wire type, or a round wire type. In this embodiment, the conduction cords 40 are of a flat wire type, the conduction cords 40 penetrate through the hollow shell 31 from the rear thereof into the connection member 30 via the recessed cavity 33. According to the embodiment, the conduction cords 40 are pressed into the slits 32 via the aperture 35, the orientation member 36 covers the recessed cavity 33, the orientation pillar 361 is accommodated in the secured hole 362 for the orientation member 36 to press and orient the conduction cords 40 (see Fig. 8). The partitions 363 separate the conduction cords 40 respectively for the cords 40 to connect with the connection member 30 in advance (shown in Fig. 3).

The connection member 30 inserts into the receiving cavity 12 in the base 10 from the rear thereof, the connection member 30 carries the conduction cords 40 to penetrate the front of the base 10 and engage therein (see Fig. 5),

and the connection member 30 and the base 10 combine into an integral piece. The contacts 20 are pressed into the slots 13, the needle portions 21 pierce the conduction cords 40, respectively, to connect electrically inner conductive materials therein (see Fig. 6).

For the connection member 30 to be firmly oriented in the receiving cavity 12, the buckling portion 14 is pushed inwardly and is retained against the orientation member 36 (see Fig. 7), so as to connect firmly the connection member 30 in the receiving cavity 12 of the base 10. The orientation member 36 can furthermore press to orientate the cords 40.

The present invention pre-connects the cords 40 to the connection member 30 outside the base 40, the connection member 30 define the aperture 35 adjacent to and communicating with the slits 32, the conduction cords 40 are arranged into the slits 32 via the aperture 35, and the connection member 30 carries the conduction cords 40 into the base 10 to connect electrically the contacts 20. Furthermore, the aperture 35 is narrower than each slit 32 and an exterior diameter of each conduction cord 40, so as to prevent the conduction cords 40 from slipping out of the slits 32.

Referring to Fig. 9, the slits 32 are rectangular, and the partitions 363 can be cylindrical in shape.

Fig. 10 and 11 shows the conduction cords 40 as being of a round type. The conduction cords 40 are made integrally in one piece from a socket 50 during a mold process. The socket 50 includes an engaging portion 51 arranged on each lateral side thereof, the engaging portion 51 engages and connects with an engaging slot 37 correspondingly formed on the connection

member 30, and the conduction cords 40 connect the rear of the connection member 30 via the socket 50.

Referring to Fig. 12, the orientation member 36 and the connection member 30 are detachable, the orientation member 36 can be lifted or covered thereby, and the orientation member 30 is secured by a lock unit while the orientation member 36 is covered. According to the embodiment, the orientation member 36 includes an orientation pillar 361 disposed on each lateral side of the bottom thereof; the connection member 30 has a secured hole 362 formed thereon and communicating with the recessed cavity 33. The orientation pillar 361 and the secured hole 362 combine into the lock unit. In addition, the hollow shell 31 can be omitted.

With respect to Fig. 13, the orientation member 36 is provided with a resilient function, the orientation member 36 includes an end connecting to the connection member 30 and an opposite end being free, the orientation member 36 is resilient to oscillate upwards and downwards, and thus the orientation member 36 resiliently presses the conduction cords 40. In another embodiment, illustrated in Fig. 14, the conduction cords 40 wind around each other.

It should be apparent to those skilled in the art that the above description is only illustrative of specific embodiments and examples of the invention. The invention should therefore cover various modifications and variations made to the herein-described structure and operations of the invention, provided they fall within the scope of the invention as defined in the following appended claims.